



United States Forest  
Department of Service  
Agriculture

Southwestern  
Region

517 Gold Avenue, SW  
Albuquerque, NM 87102

Reply to: 3420

Date: January 15, 1987

Subject: Western Spruce Budworm Evaluation, 1986

To: Forest Supervisor, Santa Fe National Forest

During July and August, 1986, Forest Pest Management entomologists monitored and evaluated western spruce budworm, Choristoneura occidentalis Free., populations and defoliation on portions of the Santa Fe National Forest (SNF). Populations were monitored by collecting egg mass density information at various locations (shown in Figures 1-7). Defoliation was monitored through aerial detection and ground surveys.

Forest-wide, the area of aerially detected defoliation was about the same in 1986 (163,380 acres) as in 1985 (169,150 acres). However, location of defoliation shifted and overall intensity of defoliation decreased. Results of this year's defoliation and egg mass density surveys are presented by Ranger District (RD) and shown in Tables 1-3.

Coyote and Cuba RDs--Area of defoliation on the Coyote RD decreased from 53,015 acres in 1985 to 11,280 acres in 1986, while area of defoliation on the Cuba RD increased from 43,395 acres in 1985 to 81,400 acres in 1986. Much of the defoliation in 1985 and 1986 occurred in the high elevation spruce/fir cover type. Ground defoliation estimates and egg mass collections were not made on these Districts, but the infestation will continue in 1987.

Jemez RD (Pajarito Ski Area and the Integrated Forest Protection Demonstration Area)--Area of defoliation on the Jemez RD increased from 7,615 acres in 1985 to 13,040 acres in 1986. Most of the 1986 defoliation was classified as light and located northeast of Fenton Lake. No defoliation was detected from aerial surveys of the Pajarito Ski Area or the Integrated Forest Protection Demonstration Area (IFPDA).

For the Pajarito Ski Area, WSB population levels and defoliation for 1987 are predicted to be low and light, respectively. Historically, this area has been repeatedly defoliated during the last decade. As a result, deformed crowns, top-kill, and low levels of tree mortality exist. Over the long-term, we anticipate WSB to be a chronic pest problem in the Pajarito area with populations and defoliation fluctuating periodically based on such factors as climate, host quality, parasite or predator levels, and other factors.





Forest Supervisor, Santa Fe National Forest

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At the request of the Jemez RD, we have initiated a more extensive WSB monitoring within the IFPDA. During 1986, twelve locations were sampled to estimate WSB egg mass densities. These data indicate light to moderate defoliation can be expected in 1987, principally in the Paliza and Peralta Canyon Areas.

No egg mass data were collected on the rest of the District. Based on past trends, however, we predict light to moderate defoliation will occur again in 1987.

Espanola RD--Defoliation on the west side of the Espanola RD decreased from 35,500 acres in 1985 to only 550 acres in 1986. No egg mass data were collected from the west side, therefore, no predictions for defoliation in 1987 can be made.

Defoliation on the east side of the District increased from 12,730 acres in 1985 to 44,270 acres in 1986. Data from egg mass plots located on this side of the District indicate light to moderate defoliation will again occur in 1987 over approximately the same area as in 1986.

Pecos RD--Area and intensity of defoliation on the Pecos RD decreased slightly from 14,150 acres in 1985 to 12,840 acres in 1986. Egg mass data indicate defoliation may intensify to moderate levels in 1987 and increase in area north to Cowles.

Defoliation observed during egg mass surveys was undetectable to light in Holy Ghost and Winsor Canyons. Current WSB damage to the visual resource is light to non-existent in the immediate vicinity of the summer home areas. Continued WSB activity is predicted in these area in 1987 and strong likelihood exists for continued activity during the next several years.

Las Vegas RD--No defoliation was detected from the air in 1986 and based on egg mass data, none is expected in 1987.

Recommendation--Direct action to suppress any infestation on the Forest in 1987 is not recommended.

As silvicultural opportunities arise, a continuing effort should be made to reduce long-term stand susceptibility to WSB.

We would like to reiterate our general recommendation that efforts be made to identify potential areas where WSB damage may conflict with management objectives especially in recreation areas where visual quality may be an important issue.

DOUGLAS L. PARKER  
Director of Forest Pest Management

Enclosures (10)





Table 1.--Aerially Observed Defoliation in 1986

Unit	Acres of Defoliation			Total
	Light	Moderate	Heavy	
Coyote RD —	11,160	120	0	11,280
Cuba RD	81,400	0	0	81,400
Jemez RD	12,240	800	0	13,040
Espanola RD w/2	550	0	0	550
Espanola RD E/2	38,310	5,960	0	44,270
Pecos RD	12,840	0	0	12,840
Las Vegas RD	0	0	0	0
Jemez Pueblo IR	1,000	0	0	1,000
TOTAL	157,500	6,880	0	164,380





Table 2.--Egg Mass and Ground Defoliation Survey Data, Integrated Forest Protection Demonstration Area, Pajarito Ski Area, and Espanola RD (east half), 1986

Plot No.	Egg Masses Per Square Meter of Foliage	1986 Defoliation <sup>1</sup>
<u>IFPDA</u>		
1	2.7	Undetectable
2	0.0	Undetectable
3	0.3	Undetectable
4	0.0	Undetectable
5	30.0	Light
6	2.9	Light
7	20.8	Light
8	6.4	Light
9	0.3	Light
10	53.0	Light
11	0.2	Light
12	13.0	Light
MEAN	10.8	
S.E.	4.7	
<u>Pajarito</u>		
101	2.8	Light
102	3.1	Undetectable
Mean	2.9	
S.E.	.2	
<u>Espanola RD (E/2)</u>		
201	2.6	Moderate
202	0.0	Undetectable
203	2.2	Undetectable
205	22.5	Moderate
207	3.7	Moderate
208	35.0	Moderate
209	10.5	Moderate
210	14.5	Moderate
211	6.5	Heavy
212	5.6	Moderate
214	9.7	Moderate
Mean	10.3	
S.E.	3.1	

<sup>1</sup> Defoliation to new growth; undetectable = <5%, light = 5 to 35%, Moderate = 35 to 65%, and heavy = >65%.



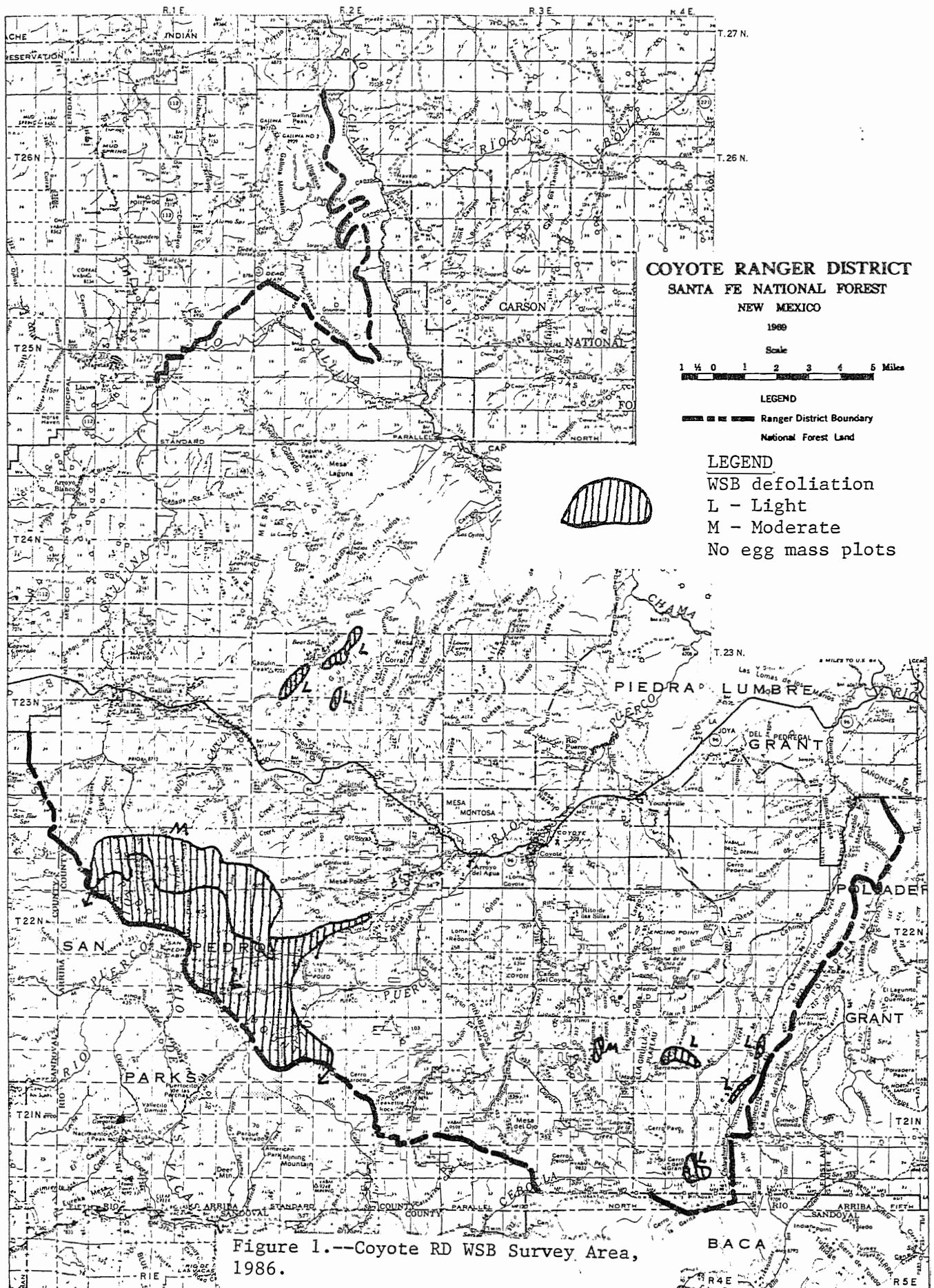


Table 3.--Egg Mass and Ground Defoliation Survey Data, Pecos and Las Vegas RD's, 1986

Plot No.	Egg Masses Per Square Meter of Foliage	1986 Defoliation
Pecos		
301	10.1	Light
302	17.8	Moderate
303	16.8	Light
304	8.8	Light
305	8.1	Light
306	1.2	Undetectable
307	5.0	Light
308	5.4	Moderate
309	4.4	Light
311	28.3	Moderate
312	19.3	Light
Mean	11.4	
S.E.	2.5	
Las Vegas		
401	0.0	Undetectable
402	0.0	Undetectable
403	0.0	Undetectable
404	0.0	Undetectable
405	0.0	Undetectable
Mean	0.0	
S.E.	0.0	

<sup>1</sup>Defoliation to new growth; undetectable = <5%, light = 5 to 35%, Moderate = 35 to 65%, and heavy = >65%.





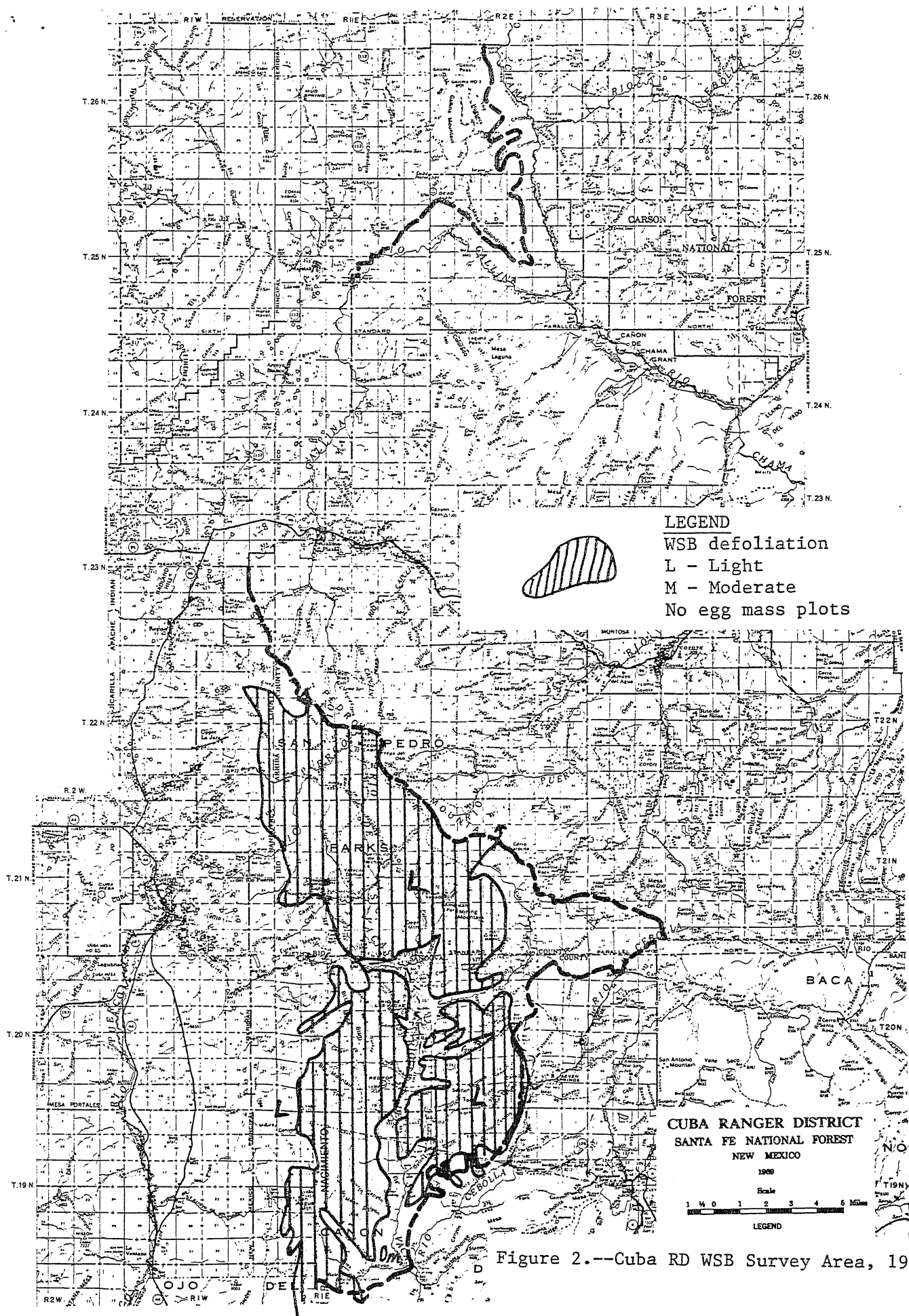
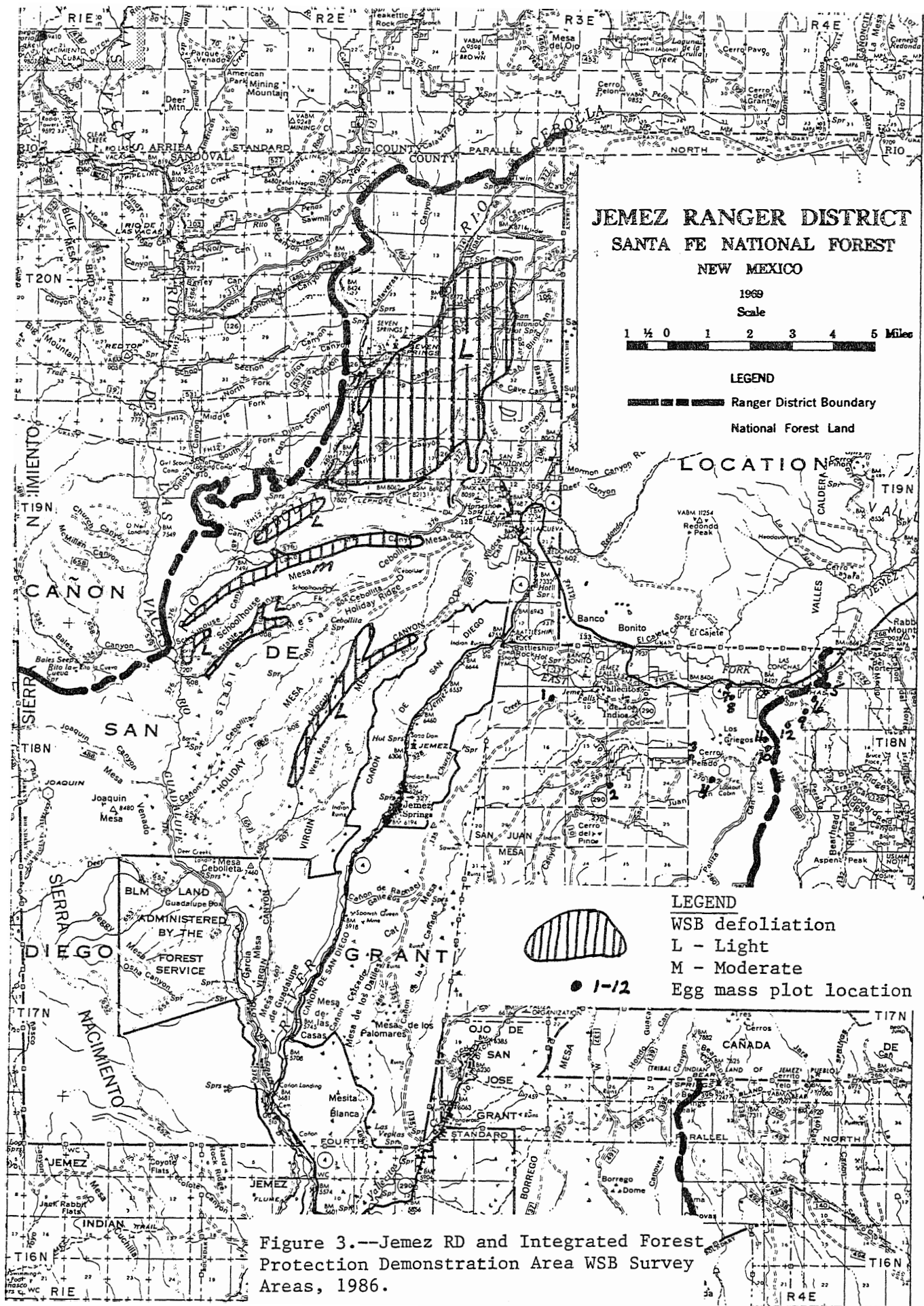
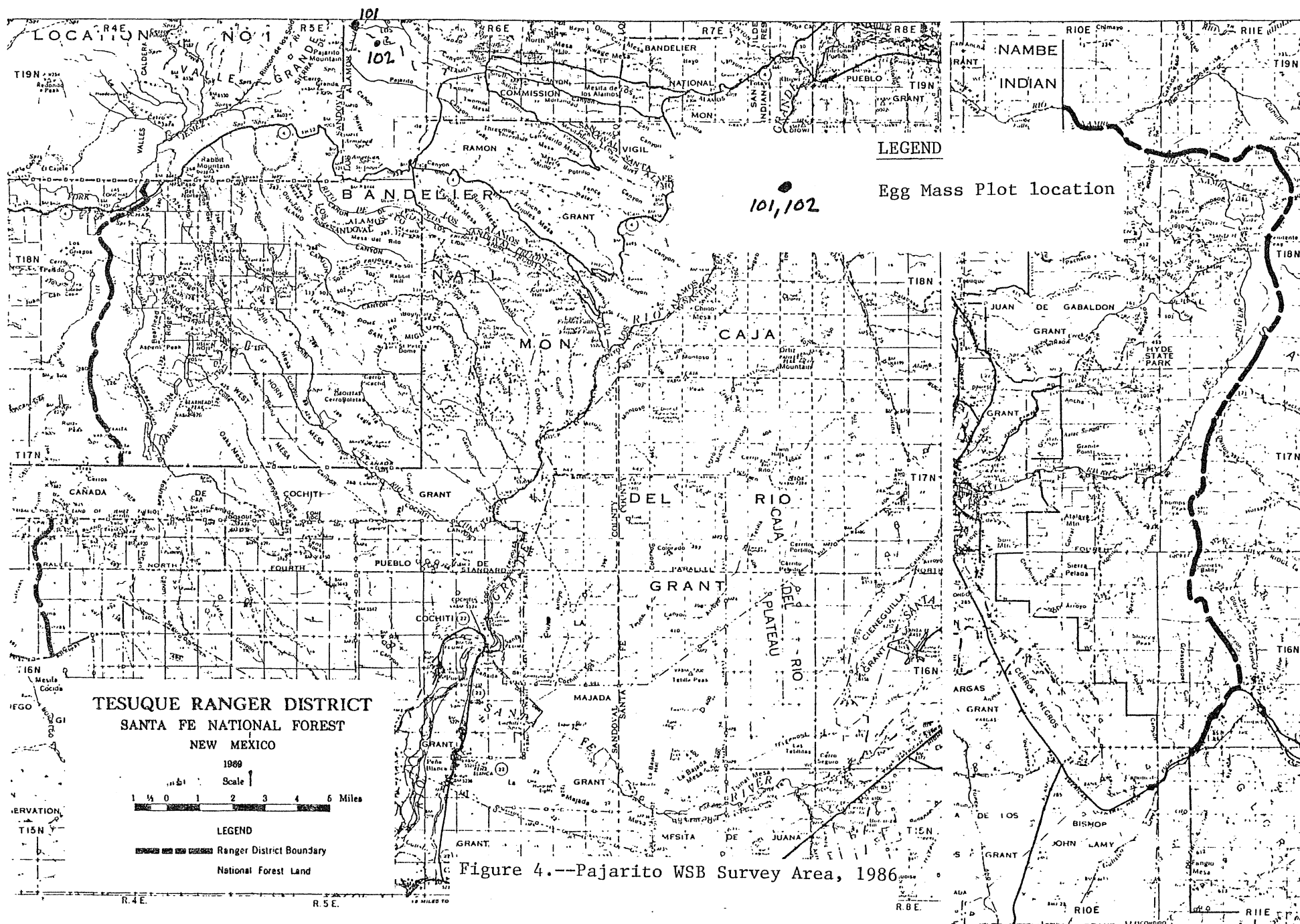


Figure 2.--Cuba RD WSB Survey Area, 1986.







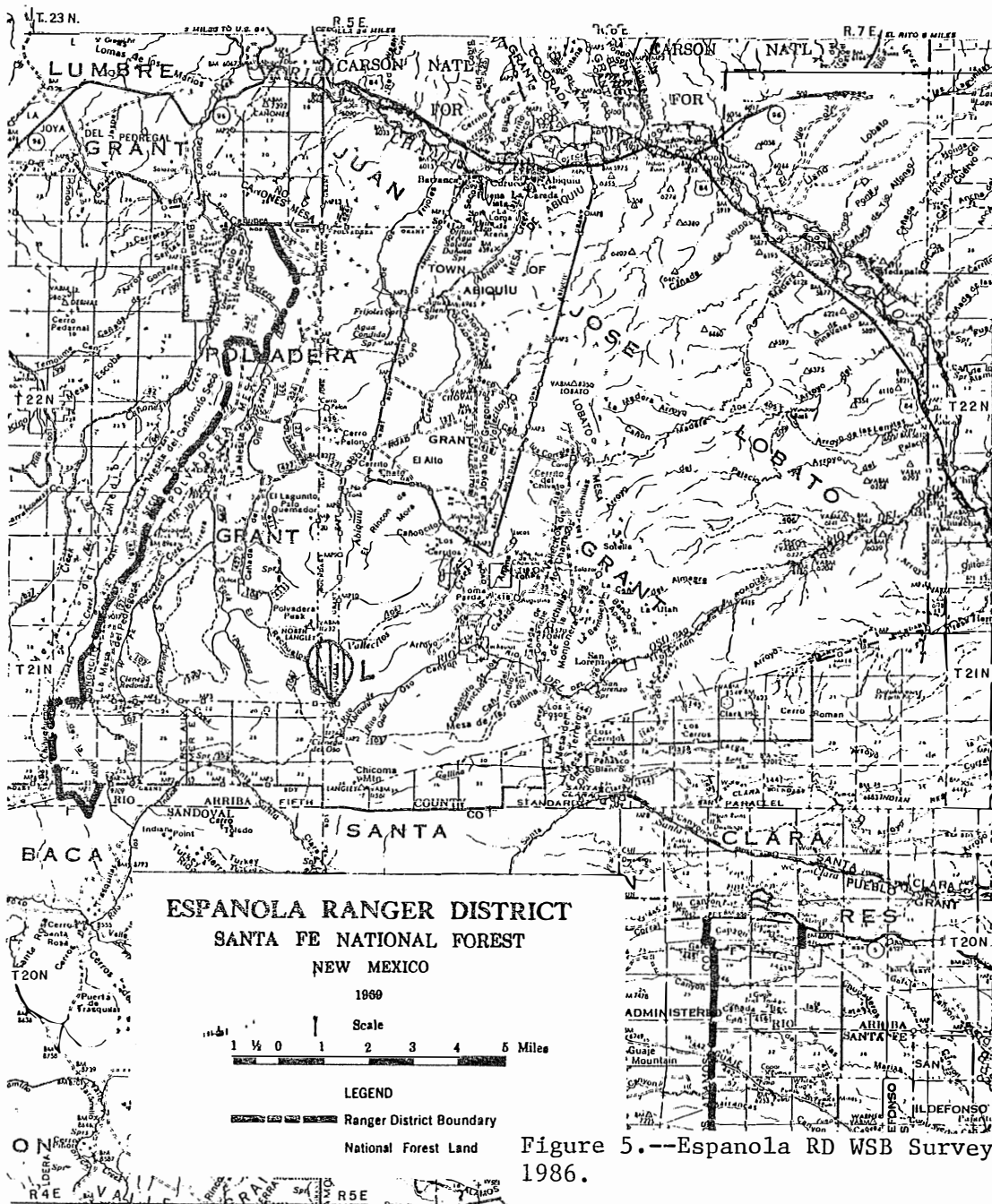
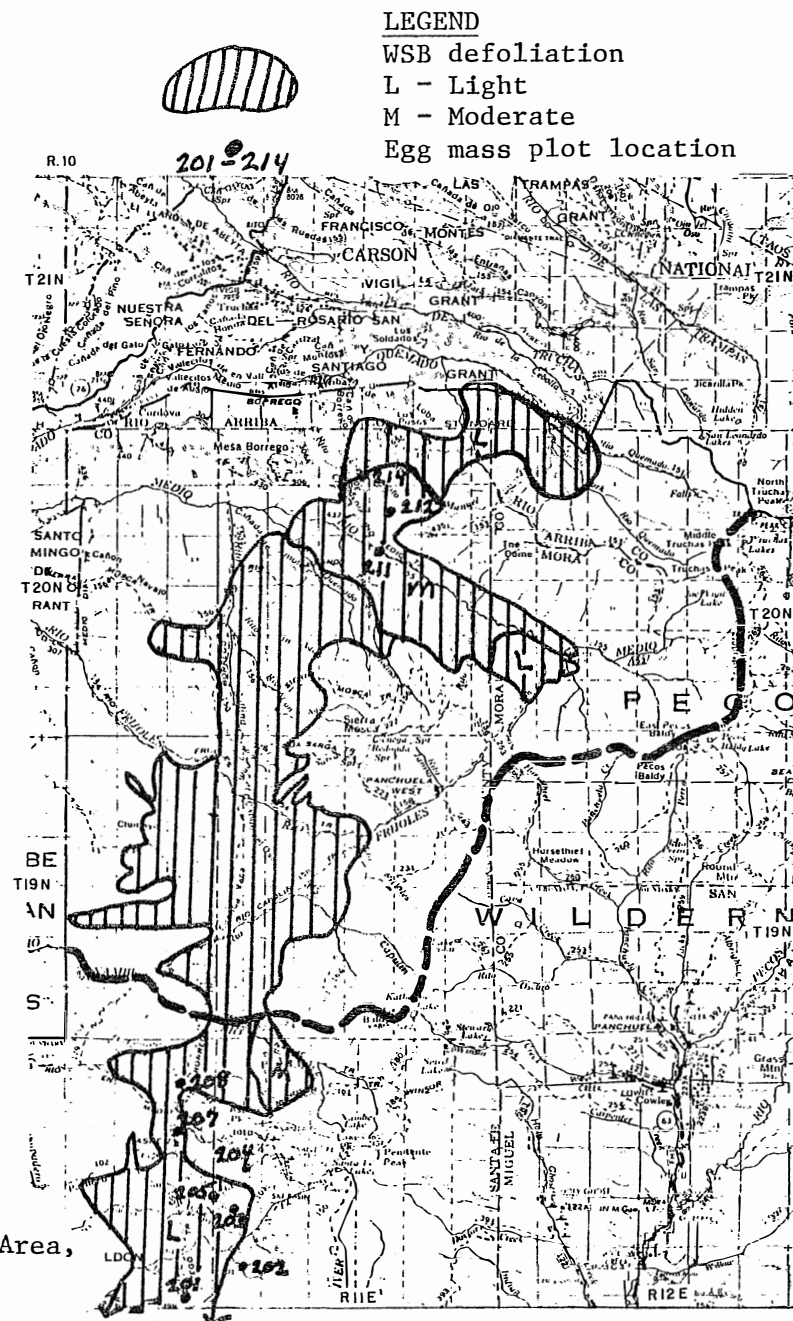


Figure 5.--Espanola RD WSB Survey Area, 1986.



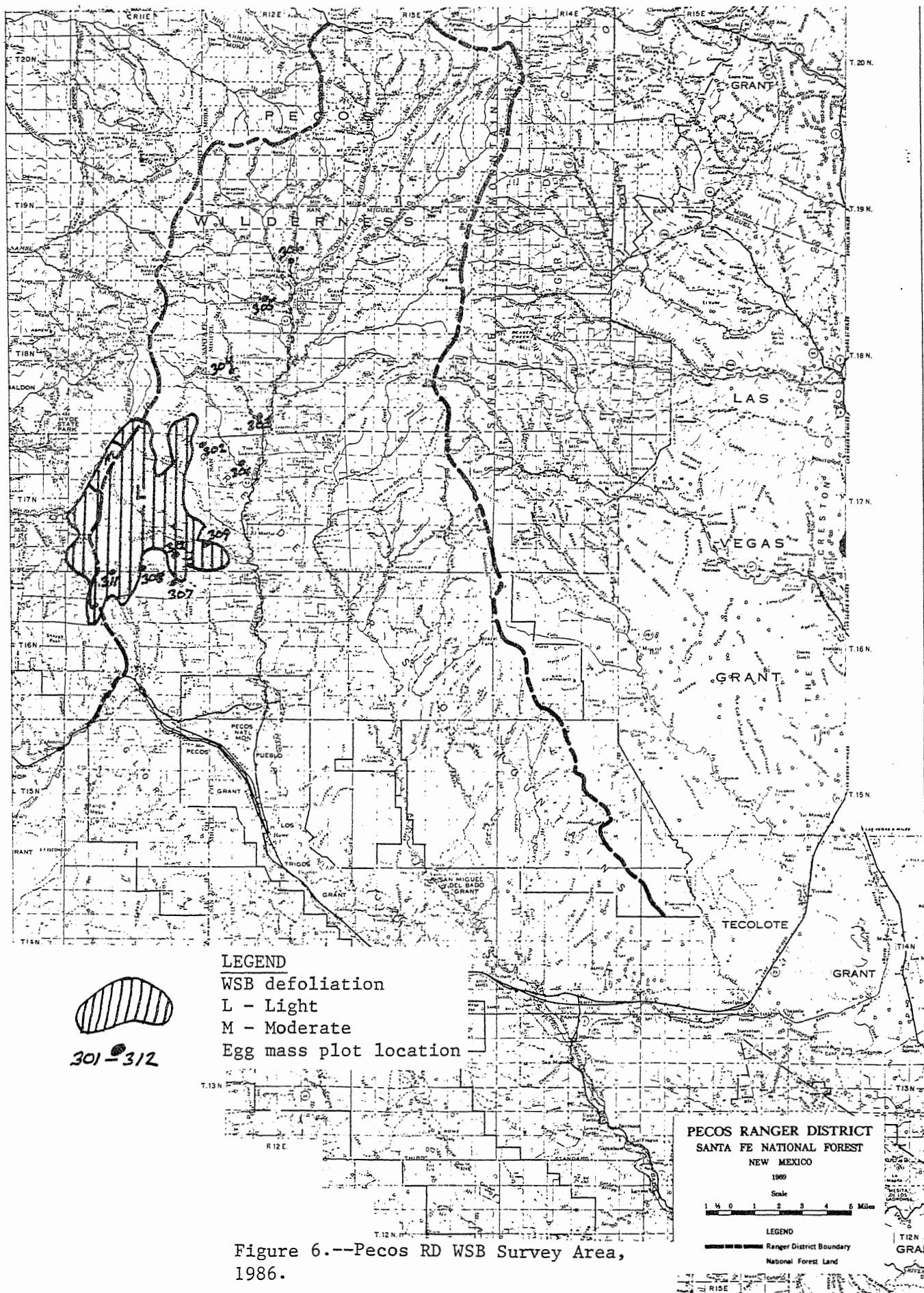
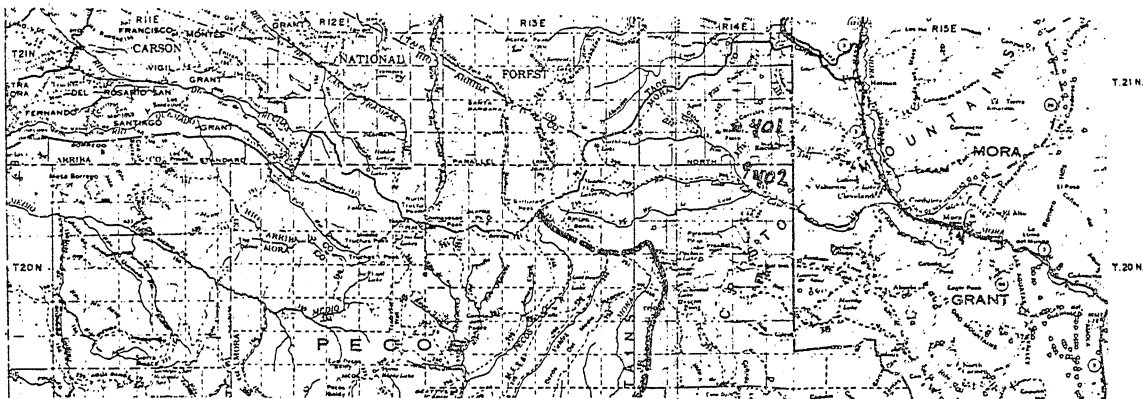


Figure 6.--Pecos RD WSB Survey Area, 1986.



**LEGEND**

401-405 Egg mass plot location

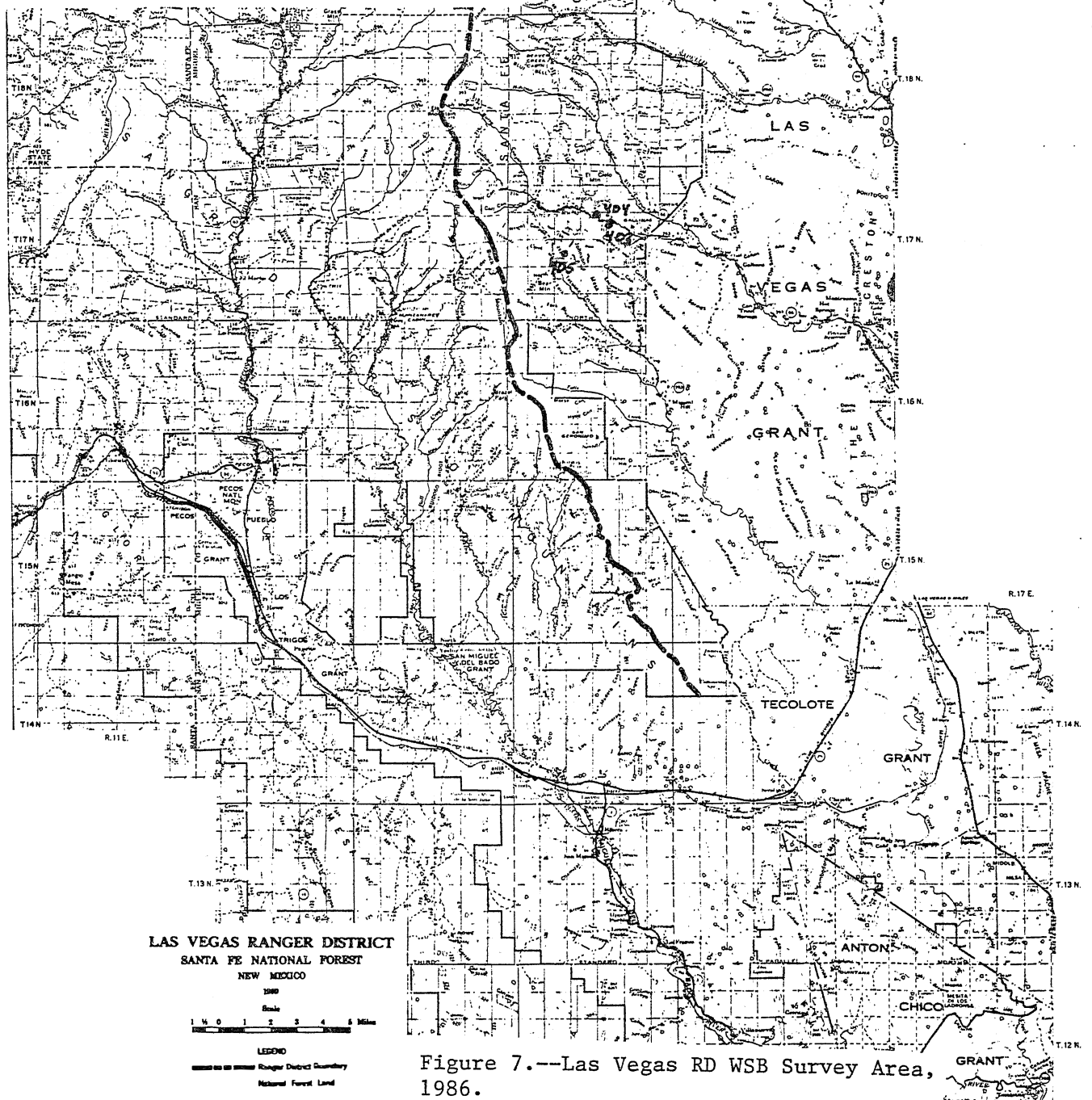


Figure 7.--Las Vegas RD WSB Survey Area, 1986.